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THE PROPOSED

NICARAGUA CANAL

—AN—

IMPRACTICABLE PROJECT.

A COMMUNICATION ADDRESSED TO THE NICARAGUA CANAL BOARD IN REGARD TO THE COMMERCIAL, NAUTICAL AND ECONOMIC CONDITIONS INVOLVED IN THE SCHEME,

—BY—

JOSEPH NIMMO, JR., LL.D.

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THE PROPOSED NICARAGUA CANAL AN IMPRACTICABLE PROJECT.

To the Nicaragua Canal Board, Gentlemen:

The Act of March 2, 1895, Public Act No. 122, under which you are acting, makes provision for "ascertaining the feasibility, permanence and cost of the construction and completion of the Nicaraguan Canal." It also provides that a Board of Engineers shall be constituted for the ascertainment of these facts.

One of the essential conditions touching the "feasibility" of the proposed canal is the amount of commerce for which it would afford a channel. To this strangely neglected aspect of the American Interoceanic Canal question, I beg leave to invite your attention. It is a question to which as Government officer and as private citizen I have given earnest attention for many years.

When Ferdinand De Lesseps visited the United States, early in the year 1880, upon his return from the Isthmus of Panama, the practicability of constructing a sea-level canal across that isthmus attracted the attention of the American Society of Civil Engineers. Such eminent engineers as Allan Campbell and Walton W. Evans, who had had large professional experience in South America, and others equally distinguished in the profession, clearly saw that the estimate as to the cost of a sea-level canal at Panama which had been put forth by M. De Lesseps fell far short of the amount which would be required for the completion of that heroic work. The correctness of this opinion has since been fully proven by results. Besides, their general knowledge of commercial movements led those gentlemen to doubt the correctness of the De Lesseps estimate as to the amount of tonnage likely to pass through the canal, viz.: six to nine million tons annually. In order to satisfy themselves upon this vitally important point, at

their suggestion the American Society of Civil Engineers requested me, as Chief of the Bureau of Statistics of the Treasury Department at Washington, to make a computation as to the amount of tonnage likely to pass through the proposed canal. With the consent of my superior officer, the Secretary of the Treasury, I complied with that request, and as the result of a close study of the economic, commercial and nautical conditions involved in the investigation and of careful computations, to which I devoted several months, I ascertained that only 1,625,000 tons of shipping could reasonably be expected to pass through any American isthmian canal under then existing circumstances, the elements of doubt being thrown in favor of the canal. In a word, the De Lesseps estimate that from six to nine millions of shipping would annually pass through the canal was found to be as absurd and as misleading as the financial statements of the Panama Canal Company, which subsequently caused the leaders of that famous enterprise to be consigned to French prisons. The falsity of the De Lesseps estimate of tonnage, both as to method and basis of fact, is hereinafter explained. (See page 36.)

My official report in regard to the proposed American Interoceanic Canal, a copy of which is transmitted to you herewith, is dated August 7, 1880. It was prepared in such detail that it is an easy matter for any competent person to verify its various statements of fact by reference to the commercial statistics of the different nations, and the other sources of information upon which it is based.

My conclusion as to the amount of tonnage which could reasonably be expected to pass through any American isthmian canal was accepted by the American Society of Civil Engineers, and generally by the public press; it aided in guiding the public judgment as to the commercial value of such an undertaking, and it stands to-day unimpeached in any particular, except by the promoters of a wild and impracticable interoceanic canal scheme, who are unable to go into the money markets of the world and raise a dollar in aid of their project.

I also invite your attention to a statement in regard to the attractive influence of the Nicaraguan Canal which I prepared in the year 1890 at the request of the New York

Chamber of Commerce. A copy of that statement is also transmitted to you herewith.

The value of particular numerical expressions can be properly appreciated only by means of comparison. Accordingly I submit for your consideration the following statement showing the relative magnitude of certain commercial movements through narrow water passages, giving the authority for such statements in each instance:

MAGNITUDE OF VARIOUS COMMERCIAL MOVEMENTS THROUGH CANALS AND OTHER NARROW WATERWAYS.

1. Tonnage of vessels which passed through the Detroit River during the year 1893, exclusive of Canadian vessels (authority Gen. O. M. Poe, U. S. Army Report for 1894)	23,091,889
2. Tonnage of vessels which passed through the Sault Ste. Marie Canal during the season of 1894 (authority Gen. O. M. Poe, U. S. Army Report of Dec. 11, 1894)	13,110,366
3. Estimated tonnage of vessels which annually pass through Hell Gate, East River	12,000,000
4. Computed aggregate tonnage of vessels which would annually pass through the proposed Cape Cod Ship Canal (authority Massachusetts State Board on Docks and Terminal Facilities, letter of Aug. 16, 1895)	6,800,000
5. Estimated aggregate tonnage of vessels which will annually pass through the recently opened Kiel Canal of Germany (authority U. S. Consular Reports for June, 1891, page 209)	9,000,000
Later official estimate	11,000,000
6. Tonnage of vessels which passed through the Suez Canal during the year 1894 (authority U. S. Consul F. C. Penfield to Department of State under date of Feb. 9, 1895)	8,039,105
7. Tonnage of merchandise handled on Harlem River and Spuyten Duyvil Creek during year ended June 30, 1893 (Report of the Chief of Engineers of the U. S. Army for 1893, page 1034)	5,910,376

8. Tonnage of merchandise transported on the Erie Canal during the season of 1892 (Report of the Superintendent of Public Works of the State of New York)..... 2,978,832

9. Tons of merchandise transported on the Champlain Canal during the year 1892 (Report of the Superintendent of Public Works of New York) 1,021,139

10. Computed amount of tonnage of vessels which would annually pass through an American isthmian canal (Report of Chief of Bureau of Statistics of the Treasury Department of August 7, 1880)..... 1,625,000

As I shall hereinafter prove to you, the changes which have taken place in the conditions governing commerce on the land and on the sea render it exceedingly improbable that if the Nicaraguan Canal were completed to-day, it could secure more than one million tons annually, the elements of doubt being thrown in favor of the canal.

This conclusion is fully sustained by the fact hereinafter proved, that although the present Panama Railroad route is a cheaper route then the proposed Nicaragua Canal route, the tonnage transported on the Panama Railroad during the year 1894 amounted to only 216,676 tons of merchandise, and required for its transportation by sea not more than 600,000 tons of registered ship tonnage, chiefly steam tonnage (see page.38) This appears to be a pretty fair measure of the possible tonnage of any American Interoceanic Canal at the present time, aside from tonnage the course of which is uncertain.

If the Nicaragua Canal were now completed, it would really be of less commercial value than the Champlain Canal, which connects Lake Champlain with the Hudson River.

The commercial importance of the proposed Nicaragua Canal may also be inferred by comparing its tonnage with the tonnage entered and cleared at several of the leading seaports of the United States. This is shown as follows :

	Tonnage entered and cleared during the year ended June 30, 1894.
At all ports of the United States	34,331,090
" New York	14,096,454
" Boston	3,126,946
" Philadelphia	2,692,968
" San Francisco	2,219,560
Estimated tonnage of Nicaragua Canal in 1880	1,625,000
In 1895	1,000,000

The above table gives only tonnage entered and cleared in the foreign commerce of the United States. The amount of tonnage entered and cleared in our domestic commerce is much greater, but no record of it has ever been made by the Government.

Perhaps a more striking estimate as to the commercial importance of the Nicaragua Canal may be obtained by comparing its tonnage with the tonnage transported over the railroads of the United States; for the numerical value of ship tonnage does not differ so much from that of the tonnage of weight as to vitiate the comparison.*

	Tonnage transported on Railroads in the United States during the year 1893.
Total tonnage transported on railroads of the United States	757,464,480
New York Central & Hudson River Railroad	21,312,072
Pennsylvania Railroad (Lines east of Pittsburgh)	69,887,460
New York, Lake Erie & Western	34,130,136
Baltimore & Ohio (east of Ohio River)	25,796,725
Illinois Central	8,180,853
Missouri Pacific System	7,792,701
Lake Shore & Michigan Southern	13,142,844
Chicago, Rock Island & Pacific	7,479,297
Chicago and Northwestern	16,123,679
Atchison, Topeka & Santa Fé	10,030,460
Union Pacific	4,503,359

*The number of tons of cargo which sailing vessels can carry is considerably in excess of their registered tonnage. But in view of the fact that so large a proportion of vessels sail with partial cargoes and in ballast, the comparison here made of ship tons with tons weight will answer for such a general statement as this.

Central Vermont	3,119,978
Boston & Maine	8,065,167
New York, New Haven, Hartford & Springfield	6,859,100
Long Island Railroad	883,672
Norfolk & Western	6,325,735
Estimated tonnage of Nicaragua Canal, 1895	1,000,000

These tables clearly indicate the greatly exaggerated estimate which the public has been led to place upon the importance of an American interoceanic canal. This erroneous impression seems to have arisen from the geographic fact that the American isthmus stands out upon the map as a conspicuous object. But that does not necessarily imply commercial importance. Cape Horn and Behring Straits and the Island of St. Helena are also in a geographic sense conspicuous objects, but none of them are of any appreciable commercial importance, nor do they import any possibility of commercial development.

Men who are prone to wax eloquent over the Nicaragua Canal scheme will, however, say to you in reply to this, "Why just look at the map of the world. There is the American isthmus separating two vast oceans. That settles the whole matter as to its vast commercial importance." But that is nonsense. Commerce is the product of land, not of water. Right here on old Long Island's sea-girt shore we have "treasures of the sea and of the sand" which exceed in value the off-shore treasures of the Atlantic and Pacific oceans combined. Besides, the Atlantic and Pacific oceans are obstacles to commerce which human ingenuity and enterprise must overcome by means of steamships and ocean cables.

Perhaps you will be inclined to say, as others have said to me, "Your computation was made in the year 1880, fifteen years ago. Since that time the amount of tonnage which would pass through the proposed canal must have greatly increased, and besides it will be the means of a great commercial development." Both of these assumptions I declare to be fallacious. It will be the chief object of the remaining portion of this paper to prove to you the correctness of this assertion.

The proper treatment of this subject necessarily involves a

somewhat careful consideration of certain conditions which determine the course of commerce and the amount of tonnage which can reasonably be expected to pass through the proposed canal. First, I would invite your attention to

A PHYSICAL CHARACTERISTIC OF THE AMERICAN CONTINENT WHICH LIMITS THE RANGE OF TRANS-ISTHMIAN TRAFFIC.

I refer to that orological feature of the Western Continent, the Andean range, which skirts the western coast of South America. The oceanic divide, is also, as you know, near the western border of Central America and Mexico. Commerce will never move westward over this range and then come east again through any trans-isthmian canal. All the railroads which will be built in an east and west direction in Mexico and the countries of Central America and of South America will ultimately haul almost all the exportable products of those countries to ports on their eastern seaboards, where such products will be most accessible to the chief markets of North and South America and of Europe. You had in Central America a clear illustration of this very fact. The foreign commerce of Costa Rica over the Costa Rica Railway is carried on exclusively through the port of Limon, on the Caribbean Sea, and I am informed by a director of that railway, Col. George Earl Church, whom you met at San José, that nine-tenths of such commerce would continue to move east if the lines of his company were extended to the Pacific Ocean. Of course this would reduce the volume of traffic of any possible interoceanic canal. This statement of Col. Church is the result of his careful commercial investigations in Costa Rica, and will be made the subject of an official report upon his return to London.

Just such a change in the course of commerce, as the result of railroad construction, has already taken place within the borders of the United States, but upon a much grander scale. Indeed, as I shall hereinafter show, the eastern flow of traffic across the continent by rail seems to render it much more probable that the States of our Pacific coast will ultimately abandon the isthmian route, than that traffic by that route will increase.

In this connection I would add that at the present time

the commerce of the western coast of Central America moves north to San Francisco as well as eastwardly by the way of the isthmus route.

Next I would invite your attention to

A NAUTICAL CONDITION WHICH OPERATES AS A STRINGENT LIMITATION UPON AMERICAN ISTHMIAN TRAFFIC.

On either side of the American isthmus and of Central America there is a calm belt which constitutes an almost absolute barrier to the employment of sailing tonnage upon the Nicaraguan or any other American isthmian canal route. By reference to page 18 of my official report of August 7, 1880, you will see that the total tonnage entered at the port of San Francisco from Panama during the years 1871 to 1879, a period of nine years, amounted to 719,422 tons, of which only 2,852 tons, or less than one-half of 1 per cent., consisted of sailing tonnage, the rest being steam tonnage. This statement is made from official data furnished by the Collector of Customs at San Francisco. You will also find on pages 37 to 40 of the same report statements by persons who are fully qualified to speak upon this subject. The total tonnage entered at the port of Colon during the year ended September 30, 1889, amounted to 790,593 tons, of which only 35,434 tons, or less than five per cent. was sailing tonnage. See Consular Reports, No. 113, page 138.

That eminent authority in physical geography, Lieut. Maury, said: "Should nature by one of her convulsions rend the American continent in twain, and make a channel across the Isthmus of Panama or Darien, as deep, as wide and as free as the Straits of Dover, it would never become a commercial thoroughfare for sailing vessels, saving the outward bound or those which could reach it with leading winds." In this day of steam navigation it has, however, from a business point of view become altogether impracticable for sailing vessels to engage in this trade.

But in the face of these well-established facts, the promoters of the Nicaraguan Canal project have very much to say about the dangers of the passage around Cape Horn, at the same time confidently asserting that all the

sailing tonnage now making the voyage from San Francisco and other Pacific coast ports of the United States to the Atlantic ports of the United States or to Europe will be turned to the Nicaragua Canal route. In reply I declare to you, upon the best authority, that a sea captain who cannot safely navigate a good ship around Cape Horn under double reefed topsails in any sort of weather isn't fit to navigate a vessel anywhere. I also confidently declare that the time required by a sailing vessel to make the passage through the Nicaragua Canal would, on the average, exceed the time required to make the passage around Cape Horn. Besides, the Nicaraguan route would involve the expense of towing and of tolls which, as I shall prove to you, would amount to much more than the expense incurred by a ship in making the passage around South America. You will find this point elaborated in my reply to the New York Chamber of Commerce in the year 1890. The idea of a line of towboats cruising around the exterior limits of the calm belt in order to find and tow sailing vessels through the Nicaragua Canal, is too absurd for serious consideration. I hesitate not to say, therefore, that any person who declares that the proposed Nicaraguan Canal will be available for sailing vessels is ignorant of nautical conditions or moved by a desire to deceive. If you have any doubts in regard to this matter you can easily have such doubts dispelled by conferring with shipping merchants in the city of New York, whose places of business are within five minutes' walk of your office.

A similar nautical condition debars sailing tonnage from the use of the Suez Canal. Upon this point I could refer you to an official statement made to me by the Collector of Customs at New York, showing that steam vessels coming from China, Japan and other distant ports invariably take the Suez Canal route, while sailing vessels as invariably pursue the much longer route around Cape Horn. See pages 90 to 94 of my report of August 7, 1880. As I am informed, since the year 1880 no sailing vessel has passed through the Suez Canal.

There is besides an economic fact which has an exceedingly important bearing upon the feasibility of the proposed canal. I refer to

THE COMPARATIVE COST OF NAVIGATING VESSELS THROUGH THE PROPOSED NICARAGUA CANAL, AND OF TRANSFERRING FREIGHTS ACROSS THE ISTHMUS OF PANAMA OVER THE PANAMA CANAL.

The latest estimate as to the cost of the Nicaraguan Canal, with the merits of which I am familiar, is that it would amount to about $252,000,000. This is the sum which the canal company agreed to pay the construction company for the building of the canal.*

This amount appears to be not excessive when we consider that the Suez Canal, only 100 miles in length, without locks and through sand and mud, cost $93,000,000, the work of construction being mainly by dredging, whereas the Nicaragua Canal has a total length of 170 miles and involves 208 feet of lockage and some very serious engineering problems, including the construction of two harbors. The interest charge upon the amount above stated, $252,000,000, at even 4 per cent. would be $10,080,000. The average interest charge per ton for one million tons, the estimated tonnage of the canal, would therefore be ten dollars. It appears reasonable to assume also that the cost of supervision, maintenance and operating would involve an additional tonnage charge of $1.50. This added to the interest charge of $10 would amount to $11.50 per ton for tolls. According to the best information which I have been able to procure, this is considerably more than the total cost of the present Panama Railroad transfer. The average freight charge on that line for the year 1894 was $4.36 per ton. The transfer charges from ship to railroad, and again from railroad car to ship, amounts to about as much more, making $8.72 per ton of weight for the entire transfer from ship to ship, as against $11.50 per ship ton on the canal. I have found it inconvenient to secure data showing the cost of Panama Railroad transfer quite as accurately as I desired, but would respectfully suggest to you the importance of having such careful computation made under your own direction.

*See page 16 of an argument by Senator John T. Morgan before the House Committee on Interstate and Foreign Commerce of Dec. 14, 1892. There has already been expended on the Panama Canal $250,000,000 for less work than is involved in the construction of the Nicaragua Canal.

The foregoing statement involves an annual charge of $11,580,000 against the Nicaragua Canal, as follows:

Interest charge	$10,080,000
Maintenance, etc	1,500,000
Total	$11,580,000

The amount of ship tonnage of the Suez Canal for the year 1894 was 8,039,106 tons, and the annual charge upon its traffic amounted to $14,770,081, or $1.82 per ton. (See Report of U. S. Consul-General Penfield, Consular Reports April, 1895, page 589.) It seems therefore that, under all the circumstances and conditions which have been mentioned, the annual charge of $11,580,000 per annum against the Nicaragua Canal is entirely reasonable.

My present consideration of the commercial aspects of the proposed Nicaragua Canal scheme is based upon the results reached in my report of August 7, 1880, and upon other available data of more recent date which verify or modify my former conclusions.

First, I shall invite your attention to

TRAFFIC OF THE PANAMA RAILROAD.

The Panama Railroad Company was chartered by the Legislature of New York April 7, 1849. The road was opened from the Atlantic to the Pacific January 23, 1855; cost of property, $12,000,000; length of road, 47.57 miles; sidings, 12.23 miles; gauge, 5 feet. A controlling interest in this road has been acquired by the Compagnie Universelle du Canal Interoceanique de Panama—commonly known as "The Panama Canal Company." The following table gives the history of the passenger traffic of the Panama Railroad Company from 1878 to 1894:

PASSENGER TRAFFIC OF THE PANAMA RAILROAD, 1878 TO 1894.

(*From Poor's Manual of Railroads.*)

Year Ended Dec. 31.	No.	Receipts.	Receipts per Passenger.
1878	24,921	$150,142.83	$6.03
1879	23,729	142,709.80	6.01
1880	26,801	148,178.07	5.53
1881	52,113	200,748.32	3.85
1882*	127,616	224,152.11	1.76
1883	303,979	350,664.99	1.15
1884	515,520	443,086.74	.85
1885	567,694	383,990.75	.67
1886	799,264	484,422.20	.61
1887	759,535	525,602.44	.69
1888	1,283,753	563,445.82	.44
1889*	290,664	221,009.28	.76
1890	64,652	114,588.64	1.77
1891	56,276	115,578.75	2.05
1892	49,446	104,207.53	2.11
1893	42,018	72,904.43	1.73
1894	44,805	59,341.43	1.32

*During the years 1882 to 1889 the Panama Canal Company transported a large number of its own employes upon the railroad.

This table shows that the average receipts per passenger fell from $6.03 in 1878 to $1.32 in 1894, and that the total passenger receipts fell from $150,142 in 1878 to $59,341 in 1894.

The following table shows the history of Panama Railroad tonnage, freight rates and receipts from 1878 to 1894:

FREIGHT TRAFFIC OF THE PANAMA RAILROAD, 1878 TO 1894.

(From Poor's Manual of Railroads.)

Year	Freight Tons.	Freight Receipts.	Freight Receipts per ton.
1878	152,478	$1,607,552.92	$10.53
1879	161,744	1,531,653.93	9.47
1880	167,433	1,489,210.99	8.90
1881	168,646	1,746,850 89	10 36
1882	194,550	1,845,758.72	9.49
1883	215,725	2,051,692.97	9.51
1884	287,243	2,693,079.12	9.38
1885	262,497	2,522,347.86	9.61
1886	320,971	2,077,790 21	6.16
1887	346,883	2,424,608.71	7.00
1888	365,266	2,273,895.59	6.22
1889	288,891	1,535,576.64	5.32
1890	231,523	1,447,375.46	6.25
1891	224,560	1,401.140.00	6.23
1892	215,905	1,289,748.32	5.97
1893	200,082	922,465.70	4.61
1894	216,676	945,390.33	4.36

This table shows that the average freight rate per ton fell from $10.53 in 1878 to $4.36 in 1894, and that the total receipts from freight fell from $1.607,553 in 1878 to $945,390 in 1894.

A corresponding reduction in rates and fares was made by the steamer lines connecting New York and San Francisco with the termini of the Panama Railroad on the two sides of the continent.

I shall next invite your attention to certain of the principal commercial movements upon which the traffic of any American interoceanic canal must depend.

ASIATIC COMMERCE IN ITS RELATIONS TO THE NICARAGUA CANAL PROJECT.

It was asserted in the year 1880 by advocates of the Panama Canal project, that Asiatic commerce with Europe and with the ports of the United States on the eastern side of the continent would be attracted to that route. A similar claim is made by advocates of the Nicaragua Canal project. This idea is refuted by an intelligent examination of a terrestrial globe. But the table of distances furnished

to me by the United States Coast Survey prove that any such expectation is absurd. These tables you will find in my report of August 7, 1880. The better facilities for coaling of steamers in voyages to and from ports of Asia, including the ports of China and Japan, also to and from all ports in Australia, by the Suez Canal route, render that route altogether preferable for steamers bound to or from the ports of Europe, or to or from ports on the eastern side of the American continent.

Tea and raw silk, our chief imports from China and Japan, will continue to come to New York and other Atlantic seaports *via* the Suez Canal, and such imports on our Pacific coast will come directly to San Francisco by steamer, and thence be distributed into the interior by rail. The Nicaragua Canal is out of the line of that trade.

For reasons already given, it is absurd to assume that sailing tonnage engaged in Asiatic commerce will ever be diverted to the Nicaragua Canal. The Cape of Good Hope and Cape Horn routes will continue to be sought by all sailing vessels so employed. Then again the relative tonnage charges on the two canals—$1.82 per ton on the Suez Canal, as against $11.50, computed, on the Nicaragua Canal—would be fatal to the latter. The same thing would be true if the Nicaragua Canal tolls were only half as great.

Next I invite your attention to

THE COMMERCE OF THE WESTERN COAST OF SOUTH AMERICA IN ITS RELATIONS TO THE NICARAGUA CANAL PROJECT.

The course and conditions governing the movements of the commerce of that strip of South America which lies west of the Andes range and borders on the Pacific Ocean are clearly set forth in my report to the Secretary of the Treasury of August 7, 1890.

A large part of the commerce over the Panama Railroad is to and from the countries situated on the western coast of South America. Such commerce would constitute the largest and most reliable source of traffic for any American interoceanic canal. But, as shown in my report of 1880, this commerce is comparatively small in amount. Since that report was written Chili has subdued Peru in the

prosecution of a war, involving an enormous destruction of property and of industry. Chili has also suffered the direful effects of a bloody and destructive civil war. These events, and changes subsequently made in the conditions of maritime commerce, indicate that the amount stated in my report of 1880 as the tonnage which would be attracted to an American isthmus canal in the commerce of the western coast of South America, is considerably in excess of the amount of tonnage which would be realized from that source if the canal were now completed.

The present steamer traffic from Chili northward over the Panama Railroad, and thence by steamer to New York and to Europe, could not be diverted from that route to the Nicaragua route. The time for passengers and the mails by the Panama route would be four or five days less, and the expense of transshipment to rail and thence to ship would be less than the expense incident to canal tolls and extra time *via* the Nicaragua Canal route.

There is a fact of some interest which has recently come to my attention. A few years ago the managers of the British steamer line between Valparaiso, Chili, and Panama, in connection with the British steamer line from Valparaiso to England *via* the Straits of Magellan, and touching at Buenos Ayres, Montevideo, Rio Janeiro, Bahia and Pernambuco, proposed to deliver merchandise at Panama in competition with the direct steamer lines from ports of Europe to Colon, and thence to Panama over the Panama Railroad, but the threat of a rival line on the western coast prevented this attempt to carry merchandise around South America in the trade to and from Panama. Finally Callao, Peru, was agreed upon as the dividing line of commerce, to and from Europe, a part of the commerce of that city going north and a part south by steamer. The import of this statement as to the conditions governing the course of the commerce of the western coast of South America with reference to any proposed American ship canal will readily occur to you.

As already shown, the carriage of guano, nitrate of soda and other sailing vessel cargoes, must necessarily continue to pursue the route around Cape Horn.

This is readily understood. The present rate for the

transportation of nitrate from Peru or Chili to Europe is said to be from 25 to 30 shillings a ton, an average of about $7 a ton. Aside from the insuperable obstacle presented by the calm belt to sailing vessels, the Nicaragua Canal toll charge of at least $10 a ton renders it wildly impracticable as a route for vessels laden with guano, nitrate or ores of any description.

And now I beg leave to invite your attention to the most important feature of the general question as to the practicability of the Nicaragua Canal project.

THE RELATIONS WHICH THE PROPOSED NICARAGUA CANAL PROJECT SUSTAINS TO COMMERCE BETWEEN THE STATES OF CALIFORNIA, OREGON AND WASHINGTON AND THE OTHER STATES OF THE UNION.

This aspect of the American interoceanic canal question most deeply concerns the people of the United States.

The proper treatment of this important subject necessarily involves a somewhat careful consideration of the commercial and industrial development of the States on the Pacific coast.

It is asserted by the advocates of the Nicaragua Canal project that the material interests of those States are suffering, and that their future progress depends largely upon the construction of a ship canal across the isthmus which connects North and South America. I shall attempt to prove to you that these assertions are not only erroneous, but absurd.

The progress of the States of California, Oregon and Washington is indicated by the following table, compiled from the United States census:

TRUE VALUATION OF REAL AND PERSONAL PROPERTY OF THE STATES ON THE PACIFIC COAST.

States.	1870.	1880.	1890.
Washington.....	$13,562,164	$62,000,000	$760,698,726
Oregon.....	51,558,972	154,000,000	590,396,194
California.....	638,767,017	1,343,000,000	2,533,733,627
Total.....	$703,888,113	$1,559,000,000	$3,884,828,547

During the decade from 1880 to 1890 California was the banner State of progress. Her growth in population, in wealth, in the value of her lands under cultivation and in the value of the products of all her industries, is shown as follows:

	1880.	1890.	Increase, Per Cent.
Population	864,694	1,208,130	40
Wealth	$1,343,000,000	$2,533,733,627	88
Value of farming lands	262,051,282	697,116,630	166
Value of products of manufacture	116,218,973	213,403,996	83

A State with such a record may surely face the future with the courage born of bright hopes.

Next I shall invite your attention to the magnitude of the products of industry in California and the distribution thereof.

VALUE OF THE PRODUCTS OF INDUSTRY IN CALIFORNIA DURING THE CENSUS YEAR, 1890.

Products of Agriculture	$87,633,290
" Manufactures	213,403,996
" Fisheries	2,117,250
" Mining	19,699,354
Total value of products	$322,253,890

While the census was as nearly complete as possible, it does not, for reasons which are entirely explainable, give fully the values of products of agriculture or of manufactures. Referring to this table, the Hon. Carroll D. Wright, Commissioner of Labor in charge of the census, in a letter to me dated Sept. 6, 1895, says:

"The *values* of agriculture, manufactures, fisheries and mining you have quoted are practically all the values shown in the census reports of 1890 for the products of industry. The agricultural products do not include *the value* of the products of nurseries, floriculture, seed farms, tropic and semi-tropic fruits and nuts, truck farming or viticulture. Only the *quantity* of product is shown for all these branches. For California, the wine product not included

in the products of manufacture amounted to 14,626,000 gallons, and the raisins to 1,372,195 boxes."

Upon the basis of the facts stated by the Census Office and other reliable data, it is estimated that the total value of all the products of industry of California during the year 1890 amounted to $400,000,000.

The distribution of this enormous product cannot be determined precisely, but it can be stated with a sufficient degree of accuracy for the purpose of this paper. The value of exports of California to foreign countries is accurately reported by the Treasury Department. So is the value of shipments east *via* Panama. The value of shipments *via* Cape Horn to the eastern side of the continent is estimated from tonnage and other data. The total shipments out of the State have also been estimated, and it seems within bounds to assume that it amounted to 30 per cent. of the total industrial product of the State. As thus computed, the products and the distribution of products of California during the census year of 1890 was as follows:

Distribution of the products of California.

(*a.*) Estimated value of the products of industry of California during the census year, 1890	$400,000,000
(*b.*) Estimated value of products of industry of California in 1890 shipped out of the State	120,000,000
(*c.*) Value of exports of domestic products of California to foreign countries, year ended June 30, 1890	35,962,078
(*d.*) Value of exports of wheat and wheat flour from California, year ended June 30, 1890.	22,716,686
(*e.*) Value of shipments from San Francisco to New York *via* Panama, year ended June 30, 1890	1,012,557
(*f.*) Value of shipments from San Francisco to eastern side of the continent, *via* Cape Horn, as estimated	1,000,000
(*g.*) Value of products of California shipped east by rail	82,000,000

From this we deduce the following statements in regard to the external commerce of California:

First.—Of the total value of the products of industry in California only 8½ per cent. was exported to foreign countries.

Second.—Of the total exports from California the export of wheat and wheat flour constituted 64 per cent., this being only 5 per cent. of the total value of the products of the State.

Third.—The shipments of products of California to eastern ports of the United States *via* Panama constituted only about one-fifth of 1 per cent. of the total value of the products of industry in the State.

Fourth.—The shipments of products of California to eastern ports of the United States *via* Cape Horn constituted only one-fifth of 1 per cent. of the total value of products of the State.

Fifth.—The shipments of products of California to points east of the Sierra Nevada range amounted to about $82,000,000, or 20 per cent. of the total value of products of industry in the State.

Recurring to the matter here specially under consideration, viz., the value of shipments from California to the States on the eastern side of the continent, the distribution of such shipments was as follows:

	Value.
By transcontinental railroads	$82,000,000
By Panama route	1,012,557
By Cape Horn route	1,000,000
Total	$84,012,557

From this statement it appears that of the total value of shipments of products of California to points in the United States east of the Sierra Nevada range, 98 per cent. was shipped overland by rail, about 1 per cent. was shipped *via* Panama, and about 1 per cent. by the Cape Horn route.

And now let us turn our attention to the wondrous story of

THE DEVELOPMENT OF TRANSCONTINENTAL RAILROAD TRAFFIC.

I am unable to present full statistics descriptive of such

development, as only one of the transcontinental railroad companies, the Southern Pacific Company, states its through traffic separate from its local traffic. But the data in regard to this one line may be regarded as a fair illustration of the wonderful growth of transcontinental railroad traffic and of the more wonderful reduction which has been made in freight charges on all the transcontinental lines.

The following table exhibits the through tonnage carried, the average rate per ton, and the average earnings per ton per mile from through traffic on the Pacific System of the Southern Pacific Company's lines. This company is the only one which operates a railroad line entirely across the continent:

PACIFIC SYSTEM THROUGH FREIGHT TRAFFIC.

Table illustrating the growth of transcontinental traffic on the Pacific System of the Southern Pacific Company since the year 1872.

THROUGH FREIGHT TRAFFIC.

Year.	Tons carried.	Av. rate per ton per mile.	Earnings.
		cts	
1872	98,657	2.60	$2,228,591.50
1873	110,188	2.58	2,472,898.71
1874	152,443	1.84	2,435,710.91
1875	173,794	2.09	3,158,805.96
1876	188,774	2.10	3,423,872.04
1877	173,239	2.08	3,113,935.55
1878	180,072	2.00	3,181,631.65
1879	219,684	1.37	2,659,869.37
1880	279,219	1.15	2,633,127.24
1881	309,329	1.32	3,423,499.00
1882	390,000	1.07	3,962,105 41
1883	396,446	1.34	5,174,833.74
1884	361,024	1.07	3,472,041.56
1885	378,421	1.14	3,590,833.84
1886	562,167	.75	3,906,504.14
1887	605,629	.87	4,886,493.87
1888	658,249	1.24	7,048,047.07
1889	594,486	1.25	6,581,543.14
1890	681,776	1.15	7,144,190.11
1891	738,914	1.19	7,971,852.11
1892	898,199	1.25	8,431,588.82
1893	1,034,111	.99	8,019,890.60
1894	1,135,440	.84	8,021,801.62

The above figures cover Central Pacific Railroad and leased lines up to 1885, and Southern Pacific Company, Pacific System, from 1885 to date (the Coast Division, South Pacific Coast Railway and lines in Oregon being included with the Pacific System since 1887). The Atlantic System through freight traffic is not included in the above statement.

Yours truly,

San Francisco, April 22, 1895. A. N. TOWNE.

I desire to express my deep sense of obligation to Mr. A. N. Towne, late Vice-President and General Manager of the Southern Pacific Company, not only for this valuable table, but for other highly appreciated courtesies of like character generously extended to me during the last fifteen years, both in my capacity as Government officer and as private citizen. The recent and sudden death of Mr. Towne has removed an honorable citizen and a brilliant and successful railroad manager.

It will be seen from the above table that the average rate per ton per mile for transportation of through traffic over the Southern Pacific line fell from 2.6 cents in 1872 to .84 cents in 1894; the rate in 1872 being three times the rate in 1894.

The number of tons transported increased from 98,657 tons in 1872 to 1,135,440 tons in 1894, and the total earnings increased from $2,228,591.50 in 1872 to $8,021,801.62 in 1894.

Among the chief eastern shipments from California by rail are green and dried fruit and wines. These products of California already equal and in certain particulars are superior to the fruit and wine products of Europe.

The reductions which have been made in rail rates east to Chicago on fruit and wine are shown as follows:

Years.	Rates per 100 Lbs.		
	Oranges, Lemons, etc.	Dried Fruit.	Wine.
1873	$2.50	$2.25	$2.00
1883	2.00	2.00	1.50
1894	1.25	1.00	1.00

Through the encouragement afforded to shippers by these reduced rates, California fruit is to-day exposed for sale in almost every grocery and at every fruit stand throughout the United States. All of such products of California are shipped east by rail. No fresh fruit and but a small proportion of the dried or preserved fruit or wine is shipped east by sea, as the great bulk of it is shipped from interior points in California and is carried direct by rail from the place of production to eastern markets.

The phenomenal growth of the overland fruit traffic of California is shown as follows:

SHIPMENTS OF FRUIT EAST BY RAIL FROM CALIFORNIA TERMINALS, IN POUNDS.

Year.	Green Fruit.	Dried Fruit.	Raisins.
	(POUNDS.)	(POUNDS.)	(POUNDS.)
1873	2,896,530	None.	None.
1883	19,222,580	3,097,950	295,050
1893	149,040,480	76,402,740	67,268,720

This rapidly developed and enormous transcontinental traffic by rail will never meet effective competition from any possible isthmian route, and mainly for the reason that it starts from interior points in California and moves to interior points east of the Sierra Nevada range. To assume that the Nicaragua Canal would divert this traffic, or exert any perceptible influence over transcontinental railroad rates in the conduct of such traffic, is altogether unreasonable.

The assumption that the proposed Nicaragua Canal would afford an available highway for the shipment of the wheat and lumber of our Pacific coast States to countries east of Cape Horn is without any reasonable foundation. This I will illustrate. Assume that a 1,500 ton sailing vessel could save fifty days at an expense of $80 per day by taking the proposed canal route. That would amount to a total saving of $4,000, or a saving of $2.66 per ton. But the tolls by the Nicaragua Canal, upon the assumption that it would cost only $100,000,000, would be $5.50 per

ton, and upon the assumption that the canal would cost $250,000,000, the tolls would amount to $11.50 per ton as already shown.

But the absurdity of the idea that the Nicaragua Canal would supply an available route for the shipment of either wheat or lumber will also readily appear to you when you consider that, on account of the calm belt about Central America, the average time of passage by that route for sailing vessels would on the average be longer than by the Cape Horn route.

I beg you will not be content with this illustrative statement, but that you will make similar computations from data which I am sure you can readily procure from shipping merchants and ship brokers in New York City.

Just here I would observe that whenever the question as to the difference in the cost of shipments *via* the proposed Nicaragua Canal and *via* Cape Horn has been squarely put to the promoters of the Nicaragua Canal project, they have evaded the question.

And now I invite your attention to

THE RESULTS OF COMPETITION BETWEEN THE PANAMA ROUTE AND THE CAPE HORN ROUTE WITH TRANSCONTINENTAL RAILROADS.

This is a subject upon which experience has thrown much light.

Upon the opening of the Panama Railroad, January 28, 1855, and until the completion of the Union and Central Pacific Railroads, May 10, 1869, commerce between the Atlantic and the Pacific coasts of the United States was carried on chiefly by means of steamer lines connecting New York and San Francisco with the eastern and western termini of the Panama Railroad. But upon the completion of the Central and Union Pacific Railroads the carriage of passengers, the mails, coin and bullion, express goods and the more valuable freights was diverted to the transcontinental railroad, never more to be deflected to any possible trans-isthmian route.

Since May 10, 1869, five other transcontinental railroads

have been constructed, besides several connecting railroads forming parts of transcontinental lines. Thus an enormous overland commerce by rail has sprung up, not only between seaboard points on the two sides of the continent, but between interior points in the States of the Pacific coast and interior points in the States east of the Rocky Mountains; also between seaboard points and interior points east and west of the Rocky Mountains. The isthmian route does not, and in the nature of things cannot compete for these particular branches of the great transcontinental traffic. It is and must for all time remain exclusively a railroad traffic.

During the year ending June 30, 1869, the year preceding the opening of the Union and Central Pacific Railroads, the value of the merchandise transported between San Francisco and New York *via* Panama was $70,202,029. But in the following year, when for the first time the competition of a transcontinental railroad was met, the value of merchandise transmitted *via* the isthmus fell to $18,594,255. During the year ended June 30, 1871, the value of the isthmus traffic fell to $11,552,713. Thus it continued to decline until it amounted to only $5,828,302 in 1880, and to only $3,517,582 during the year ended June 30, 1894.

This is clearly exhibited in the following table prepared by Hon. Josiah S. Knapp, Auditor of Customs at the Port of New York:

VALUE OF COMMODITIES SHIPPED FROM NEW YORK TO SAN FRANCISCO, AND FROM SAN FRANCISCO TO NEW YORK, VIA PANAMA, EACH YEAR FROM 1868 TO 1879 INCLUSIVE. *

(Prepared by the Auditor of the Custom House at New York.)

Years ended June 30.	Shipped from New York to San Francisco.	Shipped from San Francisco to New York.	Total.
	(DOLLARS.)	(DOLLARS.)	(DOLLARS.)
1869	50,015,994	†20,186,035	70,202,029
1870	15,334,945	3,259,310	18,594,255
1871	9,391,607	2,161,106	11,552,713
1872	6,739,563	3,086,874	9,826,437
1873	3,042,617	3,667,107	6,709,724
1874	7,049,821	1,752,653	8,802,474
1875	6,057,202	2,382,928	8,440,130
1876	4,470,594	1,983,261	6,453,855
1877	3,398,864	2,205,979	5,604,843
1878	3,976,358	3,211,245	7,187,603
1879	2,781,065	2,166,690	4,947,755
1880	2,963,065	2,865,237	5,828,302
1881	815,893	2,598,868	3,414,761
1882	1,270,900	3,153,902	4,424,802
1883	1,192,912	2,394,430	3,587,342
1884	1,040,495	1,158,201	2,198,696
1885	973,509	1,092,652	2,066,161
1886	1,317,243	1,939,926	3,257,169
1887	1,508,310	2,127,836	3,636,146
1888	3,023,350	2,737,952	5,761,302
1889	2,330,226	950,096	3,280,322
1890	2,137,525	1,012,557	3,150,082
1891	2,589,240	1,444,471	3,733,711
1892	2,130,287	1,338,260	3,468,547
1893	3,341,458	.....	.....
1894	2,323,116	1,194,466	3,517,582

* The Union and Central Pacific Railroads were completed so as to admit of trade across the continent May 10, 1869, but traffic was not fully inaugurated until about July 1, 1869

† Including $16,141,882 gold and silver coin and bullion.

It will be seen from this table that the total value of shipments between New York and San Francisco during the year 1894 was only one-twentieth the value of such shipments during the year of the opening of the Union and Central Pacific Railroads, the year 1869.

And now let us consider for a moment

THE TRAFFIC BETWEEN CALIFORNIA AND THE EASTERN SIDE OF THE CONTINENT VIA CAPE HORN IN ITS RELATIONS TO TRANSCONTINENTAL RAILROAD TRAFFIC.

This commerce is mainly between San Francisco and ports of the United States on the eastern side of the continent, and it is carried on almost exclusively in sailing vessels. The history of this traffic is clearly exhibited in the following table, kindly prepared for me by the Special Deputy Collector of Customs at San Francisco :

NUMBER OF VESSELS WITH THEIR TONNAGE WHICH ENTERED AND CLEARED AT THE PORT OF SAN FRANCISCO IN THE TRADE WITH THE ATLANTIC PORTS OF THE UNITED STATES BY THE WAY OF CAPE HORN, DURING EACH FISCAL YEAR FROM 1879, INCLUSIVE.

Year ended June 30,	ENTERED.		CLEARED.		TOTAL.	
	No. of vessels.	Tons.	No. of vessels.	Tons.	No. of vessels.	Tons.
1867	103	110,721	47	46,363	150	157,084
1868	119	124,504	28	29,291	147	153,795
1869	139	153,784	41	51,470	180	205,254
1870	111	126,726	15	19,427	126	146,153
1871	53	66,289	11	10,142	64	76,431
1872	63	70,956	8	10,753	71	81,709
1873	87	104,586	3	2,408	90	106,994
1874	62	83,248	6	8,048	68	91,296
1875	75	110,071	12	15,831	87	125,902
1876	88	124,793	12	12,257	100	137,050
1877	86	124,746	15	18,415	101	143,161
1878	68	104,544	7	9,367	75	113,911
1879	57	92,683	12	19,783	69	112,466
1880	53	87,315	11	13,095	64	100,410
1881	55	88,997	15	17,379	70	106,376
1882	66	102,447	8	10,166	74	112,613
1883	71	118,494	12	14,261	83	132,755
1884	51	82,832	8	12,335	59	95,167
1885	47	77,438	8	11,194	55	88,632
1886	38	65,491	10	13,732	48	79,223
1887	30	50,066	11	16,035	41	66,101
1888	46	74,310	16	28,620	62	102,930
1889	49	78,571	18	20,313	67	107,884
1890	49	87,791	15	25,715	64	113,506
1891	46	81,402	12	20,537	58	101,939
1892	55	100,491	24	41,490	79	141,981
1893	58	107,117	29	51,106	87	158,223
1894	38	67,747	13	24,594	51	92,341
1895	22	41,191	9	16,824	31	58,015

E. B. JEROME,
Special Deputy Collector of Customs.

This table exhibits no progress, but rather a falling off in the commerce between the Atlantic and Pacific ports of the United States *via* Cape Horn. It also exhibits a large preponderance of westbound over eastbound tonnage in this trade.

From the foregoing data it appears that the distribution of the total traffic between the eastern and western sides of the continent is about as follows: *

	Tons.
Transcontinental railroads—tons of merchandise (1890), estimated †	3,500,000
Panama route—ship tons, 1895	184,426
Cape Horn Route—ship tons, 1895	58,015

From this simple comparison it is clearly seen that the Panama traffic and the traffic by sailing vessels around Cape Horn have become mere driblets of the total commerce between the two sides of the continent, and it is evident that for all time the movements *via* the isthmus and *via* Cape Horn will continue to be very small in comparison with the volume of transcontinental railroad traffic.

I shall now invite your attention to certain matters of commercial economics and of commercial policy, which not only have an exceedingly important bearing upon the subject here under consideration, but furnish the logical explanation of the causes which determine the present course of our transcontinental traffic.

THE ASSUMED NECESSITY OF THE PROPOSED NICARAGUA CANAL FOR THE PURPOSE OF REGULATING TRANSCONTINENTAL RAILROAD RATES.

This is an assumption which appears to have taken possession of the public mind in California, Oregon and Washington, and also to a greater or less extent throughout the country. Thus far it has passed unchallenged. It is of course impossible to measure the exact force, or to deter-

* It will be observed that in so far as relates to the Panama route and the transcontinental railroads, this statement verifies the statement as to value of goods by the different routes as presented on page 21.

† This includes all traffic which crossed the eastern boundaries of California, Oregon and Washington; also foreign merchandise.

mine the precise metes and bounds of a commercial influence. Nevertheless we may determine the relative influence of rival transportation lines with a sufficient degree of accuracy for all practical purposes. Such is clearly the case in regard to competition between any possible isthmian canal passage and the transcontinental railroads of the United States. In view of the fact already clearly proven that the Panama Railroad furnishes a cheaper route-for transportation than could be supplied by the proposed Nicaragua Canal route, it appears entirely proper in this connection to postulate something in regard to the latter from the traffic experiences of the former in the attempt to compete with transcontinential railroads.

For several years after the completion of the Union and Central Pacific Railroads the Panama Railroad route exerted a decided competing influence over transcontinental rates. But that influence has been greatly weakened, and with respect to fully 90 per cent. of the freight traffic between the Pacific coast and the States east of the Rocky Mountains the influence of rates by the Panama route over transcontinental railroad rates, is at the present time almost inappreciable.

This much in regard to the influence of isthmian traffic of the United States may therefore be positively stated as the result of experience:

First.—No isthmian route presents any effective competition for the carriage of passengers, the precious metals, the mails and express goods, even between New York and San Francisco. Nor can any isthmian route ever compete for the enormous traffic in green fruit shipped from California to almost every city, town and village at the East.

Second.—The isthmus route presents no effective competition to railroad traffic between Pacific seaports and interior points east of the Rocky Mountains, between Atlantic seaports and interior points west of the Rocky Mountains, or between interior points east and west of the Rocky Mountains.

While the isthmus route at first and for several years exerted a decided regulating influence over transcontinental railroad rates, it is quite as manifest that, of late years, rates by the transcontinental railroads have tended to reduce the

rates *via* Panama, for the fall of Panama rates has been, proportionately, almost exactly the same as the fall in transcontinental railroad rates.

This is shown as follows:

	1878.	1894.
Panama Railroad rates, per ton carried	$10.53	$4.36
Transcontinental railroad rates, per ton per mile	2 cts.	0.84 cts.

The reduction in transcontinental railroad rates has not to any measurable extent been the result of Panama Railroad competition, or of the competition of the route around Cape Horn, but it has been a direct and manifest result of the wonderful reduction in the cost of railroad transportation, due to improved economies, to increased volume of traffic, to competition of rival railroads and to the competition of commercial forces.

It is a French maxim, "The cause of the cause is the cause of the thing caused." To the underlying cause of the reduction of transcontinental rates I now invite your attention.

THE REGULATING INFLUENCE EXERTED OVER RAILROAD RATES BY THE COMPETITION OF RIVAL RAILROADS, AND BY THE COMPETITION OF COMMERCIAL FORCES.

The fierce and apparently ungovernable struggle for traffic between rival transcontinental railroads has time and again culminated in a disorderly and destructive warfare which has forced rates down and even below the actual cost of transportation. This has at times begotten discriminations and disorder.

But there is another influence more subtle, more pervasive and beyond any possible combination of railroad managers, which has been most potential in effecting the wonderful reduction of railroad rates in all parts of the country. I refer to the competition of commercial and industrial forces.

As the American railroad system was extended and developed an irresistible demand arose for the establishment of direct shipments over connecting lines on a single bill of lading, from the point of shipment to the

point of delivery. Such joint traffic is carried on mainly through the common use of freight cars. This has proceeded to the extent that it is now seriously proposed to make freight cars common property among the railroads of the United States.*

The combinations to which I have referred, viz., connected tracks, joint traffic arrangement, and a common use of cars are features of the evolution of the American railroad system, and as such are highly beneficent toward the commercial and industrial interests of the country.

Besides the commercial and industrial habits of the country have become conformed to the methods of joint traffic. Thus the various markets of the United States, great and small, have been brought into sharp competition with each other, as well as with foreign markets. Agricultural areas and manufactures and mines have also become keen competitors. If the transcontinental railroad companies should raise their rates unduly on certain lines of manufactured goods shipped from the East to the West, the effect would be to stimulate such manufacturers on the Pacific Coast, and thus to break down a portion of the transcontinental traffic. But I must not enlarge upon this phase of a great and complex question.

The competition of commercial and industrial forces has tended irresistibly toward a parity of values throughout the country, and also toward a reduction of prices. This in turn has tended irresistibly toward a reduction of freight charges; for the rates charged must always be less than the difference between the price at the point of shipment and at the point of delivery, in order that freights may move. This constraint of commercial competition has established a commercial value of transportation services, which is the potential and irresistible cause of the downward tendency of freight charges. During the last twenty-five years such constraint has put railroad managers to their wits' ends in order that receipts might equal expenditures.

The constraint of this overpowering influence of the competition of commercial forces upon freight charges has

*The total value of the freight car equipment of the entire country is estimated at $390,000,000.

forced the average charge per ton per mile upon the leading railroads of the United States from two cents (accurately 1.985 cents) in 1873 to eight-tenths of one cent (accurately .801 cents) in 1893, the rate in 1873 being two and a half times the rate in 1893. The reduction in transcontinental rates was proportionally as great as upon the railroads east of the Rocky Mountains, viz., on the Southern Pacific from 2.58 cents per ton per mile in 1873 to .99 cents per ton per mile in 1893, the rate in 1873 being about two and a half times the rate in 1893. It is impossible for the transcontinental railroads, or any other railroads in the country, to raise their rates above the commercial value of transportation services and live. This constraint of their environment was the most potential cause of the bankruptcy of 47 per cent. of the railroad mileage of the United States during the eleven years preceding the year 1895, among such bankrupt railroads being three great transcontinental lines, viz., Northern Pacific, the Union Pacific and the Atchison, Topeka and Santa Fé Railroads.

Again, during the brief period of twenty years from 1873 to 1893, the railroad mileage of the country increased from 70,268 miles to 177,753 miles.

The increased efficiency of railroads, their adaptation to the purposes of commerce, and their subserviency to commerce through the competition of commercial forces have promoted the national prosperity and resulted in an enormous increase of wealth. In this common blessing the States of the Pacific Coast have been, beyond all question, equal participants with the rest of the country.

The people of California will sadly mistake the conditions which constitute their commercial and industrial environment if they shall remain under the impression that transcontinental railroad rates are or can be regulated only by the rates which may obtain over some isthmian canal route. The forces of commerce which have so beneficently regulated railroad rates in the past have as already shown wrought beneficially for the people of California in a phenomenal degree, and will continue to protect them and to insure the continuance of their splendid progress.

In the light of all these facts and considerations, how absurd is the assumption that transcontinental railroad

companies or any other railroad corporations in this country are able to raise their average rates above the commercial value of transportation services.

How absurd also appears the assumption that the Nicaragua Canal route can ever divert transcontinental railroad traffic.

I believe that when the people of California, Oregon and Washington shall come to consider carefully and to realize clearly the relative force of the influences which now determine the course and conditions of commerce between the two sides of the continent, they will clearly see that they have wasted a great deal of enthusiasm over the assumed necessity for the proposed Nicaragua Canal as a means of regulating transcontinental railroad rates.

COMPARATIVE MERITS OF THE PROPOSED PANAMA CANAL AND THE PROPOSED NICARAGUA CANAL ROUTES.

The Hon. L. F. McKinney, United States Minister Plenipotentiary and Envoy Extraordinary to Colombia, is reported to have said recently that in his opinion it is much more feasible to complete the Panama Canal with its twenty-four miles of line yet to be constructed, than to attempt to construct the Nicaragua Canal with its great engineering problems involved in the damming of the San Juan del Norte, the construction of certain basins, and the construction of harbors at Brito and at Greytown, the latter involving the important question—will it remain constructed when it is constructed.

Besides the engineering questions involved in the choice of routes, the merits of which questions are known to you, it may be observed that the Panama Canal would be much more likely than the Nicaragua Canal to secure traffic from the west coast of South America, which traffic is increasing, while the traffic of the western coast of Central America and of the United States, for reasons already mentioned, appears likely to still further decline.

I think the fact cannot have escaped your observation that the Nicaragua Canal scheme is a thing of political and legislative devisement, and that it has no commercial backing whatsoever.

THE ANALOGY ATTEMPTED TO BE DRAWN BETWEEN THE PROPOSED NICARAGUA CANAL AND THE SUEZ CANAL IN SUPPORT OF THE FEASIBILITY OF THE FORMER.

The analogy attempted to be drawn between the Nicaragua Canal and the Suez Canal is of course sharply controverted by the statement already made that more than eight million tons of shipping annually pass through the Suez Canal, whereas not more than one million tons annually could be expected to pass through the Nicaragua Canal.

Besides, obvious geographic distinctions repel any such assumed analogy. By reference to a terrestrial globe it is clearly seen that the Suez Canal is distinctively an inland or Mediterranean Canal. In other words it is, in a physico-geographical sense, a continental canal, whereas the Nicaragua Canal is in the same sense an oceanic canal. No great unproductive oceans separate the Suez Canal from the principal commercial currents of the globe. It is directly in the line of such currents connecting the nations of Europe and the Atlantic ports of the United States with the great commercial nations of Asia and with Australia. The Nicaragua Canal can never become a competitor for that important commerce.

But I desire also to call your attention to a most important economic and commercial condition which sharply discriminates the Suez Canal from the proposed Nicaragua Canal, viz., the fact that while the Nicaragua Canal has several sharp railroad competitors operating upon much shorter lines and absolutely controlling over ninety per cent. of the transcontinental traffic, the Suez Canal has no such railroad competitor for a much larger commerce, thus securing to it all the passenger traffic, besides the express traffic and the traffic in general merchandise. It is difficult to imagine two commercial routes more diversely circumstanced. The Suez Canal is, in a commercial sense, near the centre of the earth, whereas the Nicaragua Canal is at one of the ends of the earth.

Besides, as already mentioned, there is likely to be a considerable railroad development in Mexico and Central America, the inevitable effect of which will be the carriage

of goods from the western to the eastern side of the continent by rail.

In the light of these facts it is not a strange thing that while the Suez Canal commands a traffic of eight million ship tons a year, an American isthmian canal cannot be expected to command more than one million tons a year.

THE DE LESSEPS AND OTHER COMPUTATIONS AS TO THE AMOUNT OF TONNAGE WHICH WOULD PASS THROUGH AN AMERICAN INTEROCEANIC CANAL.

The so-called De Lesseps estimate as to the amount of tonnage likely to pass through the proposed Panama Canal was as follows:

	Tons.
From and to the United States	2,000,000
" " " England	1,500,000
" " " France	356,000
" " " other countries	356,000
New traffic to the Orient	1,333,000
	5,545,000

This estimate of tonnage was made up in the following manner: First, an exaggerated estimate was made as to *the value* of the commerce which would pass through the proposed canal, which estimate included traffic which would be obliged to go out of its shortest way from 3,000 to 10,500 miles in order to take the Panama route. Then an inaccurate estimate was made as to the *value per ton* of cargoes. The overestimated value of commerce was then divided by estimated value of traffic per ton, in order to ascertain the total tonnage movement through the canal.* This absurd statistical juggle was repeated in the statement which was submitted by the Nicaragua Canal Company to the New York Chamber of Commerce in the year 1890, and subsequently referred to me for examination.

The direct and only reliable method of computation is to take the tonnage movements in the first instance, as published by commercial nations, and not to resort to any indirect process for arriving at the tonnage.

But De Lesseps even went so far as to do violence to

*See Transaction of American Society of Civil Engineers for April 1880.

this indirect and absurd method of computation. The Committee on Statistics, of which M. Levasseur was chairman, did not claim that the whole of the amount above stated—5,545,000 tons—would pass through the canal, but simply that it constituted "the reservoir from which traffic might be drawn," without pretending to decide how much of it would go by other routes. That saved the statistician. But De Lesseps boldly asserted that in the beginning fully 6,000,000 tons of shipping would pass through the canal, and besides, he estimated that during the ten years which would be required to construct the canal the possible traffic would increase at the rate of about 5 per cent. per annum, upon which guess he roughly stated that upon the completion of the canal in 1890 its tonnage would amount to about 7,250,000 tons.

If De Lesseps had been guided by the fact that the Suez Canal was at that time securing only 52 per cent. of its possible traffic upon the basis of distance, he would have stated the tonnage which would be secured by the Panama Canal at about 2,883,400 tons upon the basis of the data furnished to him by the Committee on Statistics. It is difficult to conceive of anything more absurd than this wild conjecture. And yet the De Lesseps estimate is, as you are undoubtedly aware, the basis of the estimate made by the promoters of the Nicaragua Canal Company as to the tonnage which may be expected to take that route. Indeed, the Nicaragua Canal people have rather outdone De Lesseps.

Referring to the computation made by me and presented in my report of August 7, 1880, as Chief of the Bureau of Statistics, I will add that the subsequent course of commercial movements as hereinbefore set forth compels a reduction in the amount of tonnage then computed for "an American interoceanic canal," viz., 1,625,000 tons, and compels me to lower the estimate to about 1,000,000 tons.

There must always be a considerable element of doubt in any computation as to the amount of traffic upon a projected line, but that the element of doubt in regard to the amount of traffic through the projected canal has been cast in its favor, will I think be apparent to you from the following considerations:

First.—It has been proved that the present Panama

Railroad route affords a cheaper mode of isthmian transit than would be supplied by the proposed Nicaragua Canal.

Second.—There was transported over the Panama Railroad during the year 1894 only 216,676 tons of merchandise.

Third.—According to the latest available data, that of a British report, kindly furnished to me by the Statisician of the Department of State, the movements of vessels at Panama during the year 1893 were as follows:

	Tons.
Entered	242,619
Cleared	244,952
Total	487,571

From this it would appear to be entirely fair to estimate the ship tonnage to and from the Isthmus of Panama at 600,000 tons, and to assume that this amount is a full measure of the amount of tonnage which at the present time could be secured by any American Interoceanic Canal. (See also pages 50 and 51 of my report of 1880.)

To repeat what I said before, the Nicaragua Canal is of less commercial importance than the Champlain Canal in the State of New York.

THE POLITICAL AND MILITARY ASPECT OF THE PROPOSED NICARAGUA CANAL.

It is not my purpose to discuss the political and military aspects of the proposed Nicaragua Canal, further than to advert to the nature and scope of the inquiries bearing upon that subject.

The military questions which arise are twofold—those of a technical and those of a political character. The former must be determined by military men, while the latter are essentially administrative questions to be decided by the executive and legislative branches of the Government. This distinction is clearly recognized in our Constitution and laws, and in our traditional practice. The President of the United States, a civilian, is Commander-in-Chief of the Army and Navy of the United States, and the executive heads of the War and Navy Departments are also civilians. The question of acquiring a military status

upon a foreign soil, or within the jurisdictional waters of a foreign country, is clearly one which, in the first instance, concerns the people of the United States, and for that reason appeals directly to the legislative mind. The Congress of the United States cannot delegate this responsibility to any commission, civil or military. Such action would meet the stern protest of the American people.

It is, therefore, gratifying to observe that there is not a word in the statutory provision creating your commission which implies that you have any duty whatever to perform in regard to the politico-military aspects of the Nicaragua Canal project.

The so-called "Monroe Doctrine," which asserts the opposition of the United States to any further acquisition of territorial jurisdiction by any European nation upon the American Continent, clearly involves the military aspects of the proposed Nicaragua Canal. This doctrine is apparently gaining strength in this country.

In view of these facts and suggestions, the following questions appeal directly to the legislative mind :

1. Would not the influence and power of the Government of the United States be compromised by the necessity of maintaining extraordinary means for the defense of commercial interests at a single point, especially for the defense of a commercial highway of such small value as is that of the proposed Nicaragua Canal ?

2. Are there not harbors among the West India Islands and bordering upon the continent which would much better serve the needs of the naval forces of the United States, particularly in the enforcement of the Monroe doctrine, than would the harbors which may be constructed at either end of the Nicaragua Canal ?

There are also certain technical questions which precede the foregoing political questions, viz.:

1. If the Nicaragua Canal is not so constructed as to admit the passage of the largest and most powerful ships of war, would it not fail of its object ?

2. Is it possible to construct and maintain at either end, or on the line of the Nicaragua Canal, repair shops and depots for the storage of material of war, which would be

available for the use of our ships at sea in the vicinity of the canal?

3. Could not such shops and depots be much better established at other points, the natural defenses of which are superior to those at either end of the proposed canal?

My only object at this time is to state these political and military questions involved in the Nicaragua Canal project, and not to discuss them.

CONCLUSION.

The Nicaragua Canal project, upon its face, presents a somewhat alluring aspect, but a calm consideration of its merits leads inevitably to the conclusion that it is an impracticable scheme. We live in an age of hard facts and of practical limitations to human effort. Hopefully the age of commercial chimeras has passed, never to return while the world stands.

Napoleon declared that the highest quality of a great general is "the ability to see things as they are, and not to make pictures in his own mind." This astute remark suggests a rule of conduct which should characterize all human action requiring the exercise of deliberative judgment. And pardon me, gentlemen, I think it suggests the mode of procedure which men in your position should adopt in dealing with a subject concerning which enthusiasts and dreamers have made so many pictures in their own minds. Those pictures on all sides salute you, and they may entertain you. On the other hand, this iconoclastic analysis of a fascinating scheme may at first be repellant to you—for I have experienced that feeling very keenly myself in attempting to deal intelligently and justly with it—but in the end, no man is so happy as he who walks in the light of truth.

I am, gentlemen,

Very respectfully yours,

JOSEPH NIMMO, JR.

Huntington, Long Island, N. Y.,
September 30th, 1895.

TC
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Engin.

Nimmo, Joseph
The proposed Nicaragua canal

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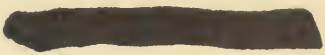
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